Heron Community Water System

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Executive Summary
November 08, 2006

Introduction and Background
Heron Community Water System is located about 11 miles northwest of Noxon on Highway 200, along the Clark Fork River/Cabinet Gorge Reservoir (Figure 1 and Figure 3A and Figure 3B). Heron is approximately 50 miles northwest of Thompson Falls and 50 miles southwest of Libby. The town has a population of about 149 (Census and Economic Information Center, 2002).

The Heron Community Water System pubic water supply is classified as a community system under the Federal Safe Drinking Water Act, because the system serves at least 25 year-round residents through at least 15 service connections. According to the most current sanitary survey, the public water supply services about 60 residents with about 46 active service connections. Heron Community Water System's public water supply is served by ground water from a single well that as drilled in 1969 according to the sanitary survey. These well is about 132 feet deep and is interpreted as being completed in the alluvium above the Wallace Formation.

Within the past five years, Heron Community Water System has 11 positive total coliform detections between May and June 2001. A distribution line break below the storage tank is thought to have contributed to the positive bacteria samples. The leak was repaired and tests have been good since that time. No MCL exceedances were noted for any other constituents monitored over the past five years, this includes nitrate. The highest nitrate value recorded for water from all of the wells is 0.64 milligrams per liter (mg/l) in January 2005 which is significantly below the MCL of 10 mg/l.

Delineation of Source Water Protection Areas
The purpose of delineation is to map the source of drinking water for the public water supply and to define areas within which to prioritize source water protection efforts. Four source water protection areas are defined for Heron Community Water System (Figure 3A, Figure 3B, Figure 6, Figure 7, Figure 8). They include a 100-foot control zone around the well, an inventory region that is based on hydrogeologic mapping, a recharge region corresponding to the watershed surrounding the public water supply, and a surface water buffer region for Elk Creek.

Source water for the Heron Community Water System public water supply comes principally from modern alluvium present within the Clark Fork River Valley. The aquifer is interpreted to be generally unconfined but clay layers are documented from multiple driller's logs for wells in the area. In general, recharge is considered to come from a combination of precipitation, snowmelt runoff, irrigation return flows, and leakage from streams and irrigation canals. Ground water flow direction is interpreted to be primarily from upland areas toward the river (Figure 3A and Figure 3B). Near the river the ground water flows generally parallel to the river.

Inventory of Potential Contaminant Sources
The inventory of potential contaminant sources is used to assess the susceptibility of the Heron Community Water System public water supply to contamination and to identify priorities for source water protection planning. The inventory focuses on facilities that generate, use, store, transport, or dispose of

potential contaminants and on land types where potential contaminants are present. Maps showing the inventory results are shown in Figure 3A and Figure 3B, Figure 6, Figure 7, Figure 8.
Susceptibility is the potential for a public water supply to draw in water contaminated by inventoried sources. Susceptibility is determined by considering the hazard rating for each potential contaminant source and the existence of natural or man-made barriers that decrease the likelihood that contaminated water will flow to the public water supply well (Tables 6 and 7). Table 8 lists all of the potential contaminant sources identified in this inventory and includes the hazard and final susceptibility ratings assigned to each potential contaminant source.

Potential contaminant sources that could pose a threat to the public water supply include: the Northern Pacific Railroad, leaky underground storage tank, two closed landfill sites, and areas of high or medium septic density. Figure 3A, Figure 6, Figure 7, and Figure 8 show the locations of potential contaminant sources in relation to the public water supply. Table 8 lists all of the potential contaminant sources identified in this inventory and includes final susceptibility ratings. All potential contaminant sources may not have been identified in this inventory. In some instances, inadequate location information in the available databases can result in some potential contaminant sources not being included in the inventory.

Management Recommendations
It should be noted that even small releases of some chemicals in close proximity to a well could have significant negative impact on water quality. Steps can be taken to reduce the likelihood of releases to the source water for the public water supply or in the vicinity of the sources. Some of these steps are listed in Table 8 and under the Management Recommendations section on page 18.

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INTRODUCTION

This Delineation and Assessment Report was prepared by Laura Rennick, an intern with the Source Water Protection Program (SWPP) at the Montana Department of Environmental Quality (DEQ) and Jim Stimson, Hydrogeologist with the SWPP reviewed and edited the report. Heron Community Water System Public Water Supply (PWS) is located in Sanders County, Montana, about 11 miles northwest of Noxon on Highway 200 (Figure 1). The DEQ PWS identification number, operator name, and operator phone number for the Heron Community Water System PWS appear on the title page of this report.

Purpose

This report is intended to meet the technical requirements for the completion of the source water delineation and assessment report for the Heron Community Water System PWS as required by the Montana Source Water Protection Program (DEQ, 1999) and the federal Safe Drinking Water Act (SDWA) Amendments of 1996 (P.L. 104-182). The Montana Source Water Protection Program is intended to be a practical and cost-effective approach to the protection of public drinking water supplies from contamination. The primary purpose of this source water delineation and assessment report is to provide information to assist the Heron Community Water System PWS operator in the identification of potential contaminant sources near its well and to encourage the development of a source water protection plan to help protect the drinking water for the long term.

Delineation and assessment constitute major components of the Montana Source Water Protection Program. Delineation entails mapping the boundaries of source water protection areas, which encompass ground water and/or surface waters contributing to public water supply. Assessment involves identifying locations or regions within source water protection areas where contaminants may be generated, stored, transported, or disposed, and determining the relative susceptibility of drinking water to contamination from these sources.

Limitations

This report was prepared to assess threats to the Heron Community Water System PWS and is based on published data including the most recent sanitary survey, which was completed on September 18, 2003, by Michael Kropp of the Montana Department of Environmental Quality, and information obtained from local residents familiar with the community. The terms “drinking water supply” and “drinking water source” refer specifically to the sources of Heron Community Water System PWS, and not any other public or private water supply. Also, not all of the potential or existing sources of ground water or surface-water contamination in the area of Heron Community Water System are identified. Only potential sources of contamination in areas that contribute water to the identified drinking water sources are considered.

The term “contaminant” is used in this report to refer to constituents for which maximum concentration levels (MCLs) have been specified under the national primary drinking water standards, and to certain carcinogenic or toxic constituents that do not have MCLs but are considered to be significant health threats.

CHAPTER 1
BACKGROUND

The Community

Heron Community Water System is located about 11 miles northwest of Noxon on Highway 200, along the Clark Fork River/Cabinet Gorge Reservoir (Figure 1, Figure 3A and Figure 3B). Heron is approximately 50 miles northwest of Thompson Falls and 50 miles southwest of Libby. The town has a population of about 149 (Census and Economic Information Center, 2002). Sanders County has a population of about 10,227 and the county's population has increased about 17% since 1990. According to the sanitary survey, approximately 60 people receive their water from the Heron Community Water System. The Heron Community Water System is the only public water supplies (PWSs) in the Heron area (Figure 3A). The PWS is classified as a community system that serves 25 or more year round residences. Table 1 below lists the PWS and the source of water it uses.

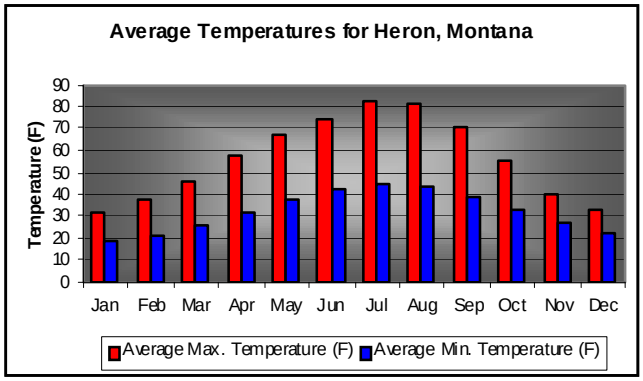
Table 1. Public Water Supplies in the area.

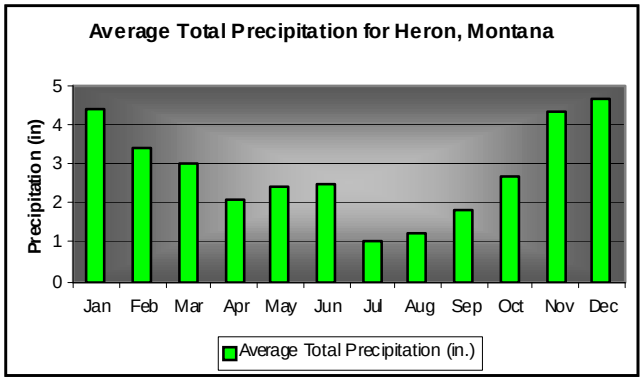
PWSID	Primary Name	Class	Source Name	Source Type	Resident Population	Non-Resident Population
MT000463	Heron Community Water System	Community	Well 1 - 1969	Groundwater	60	0

Climate

Figure 2. Average Temperatures and Precipitation

The average daily high and low temperatures at Heron are 81.7 °F and 43.6°F in August and 31.4°F and 18.3°F in January (Figure 2). Precipitation averaging 33.56inches annually is heaviest in December and January. Average annual snowfall is 85.2 inches with the largest average accumulation coming in January (Western Regional Climate Center).





Geographic Setting

Heron is located in the Clark Fork River valley near the Montana – Idaho border (Figure 1 and Figure 3A and Figure 3B). This location is about 2,264 feet above sea level and is within the Lower Clark Fork Watershed (HUC # 17010213130). The Clark Fork River Valley is between 2.5 and 4 miles wide near Heron.

Geology

Heron Community Water System's well is completed in the alluvial deposits within the Clark Fork River Valley (Figure 4). The alluvium consists primarily of sand, gravel, boulders and some clay. A geologic map of the area indicates that glacial deposits are also present and consist of a complex mixture of clay, sand, gravel, and boulders. Based on lithology information from the driller's logs for the Heron well and other wells in the vicinity, the alluvium and the glacial deposits are in the range of 220 to more than 400 feet thick. The alluvium and older glacial deposits lie on top of the Precambrian Belt Series – Wallace Formation, which consists of limestones, dolomite, quartzite, shale and sandstone (Figure 4). The Wallace Formation can also function as an aquifer in some places although wells completed in this bedrock aquifer are usually not as productive as wells completed in the modern alluvium.

The Occurrence of Ground Water:
Ground water occurs within the older bedrock, sand and gravel beds within the glacial deposits and within the modern alluvium. As in many other areas of the state, the most productive wells tend to be those completed in the modern alluvial deposits that flank and under lay the larger rivers and streams. Recharge for the aquifers in the Heron area comes from a combination of precipitation, snowmelt runoff, irrigation return flows, and leakage from rivers, streams and irrigation canals.

The Public Water Supply

The Heron Community Water System pubic water supply is classified as a community system under the Federal Safe Drinking Water Act, because the system serves at least 25 year-round residents through at least 15 service connections. The PWS services about 60 residents with about 46 active service connections.

Heron Community Water System's public water supply is served by a single ground water well. Well #1 is located near an alley on the southeast side of Heron (Figure 1). Well #1 was drilled to a depth of 132 feet on July 1, 1969. The well is cased in 8-inch steel to a depth of 132 feet. This is an open bottom well. The static water level is 86 feet and there is no drawdown (at 33 gallons per minute, for 5 hours). The well yields 33 gallons per minute. The well has a 7.5 horsepower submersible Redjacket pump. The Montana Bureau of Mines and Geology (MBMG) interpret the wells as being completed in modern alluvium. There is no treatment on this system. Water flows directly to the 20,000-gallon storage tank that operates on a float. The sanitary survey makes 4 recommendations:

1. There are several small trees growing over the main distribution line, north of the elementary school. It is recommended that these trees be removed from above the distribution main to avoid problems as the trees grow.

2. The storage tank is being to become corroded and should be repainted.

3. The gasket on the storage tank hatch need some improvement to the gasket, as insects can currently enter into the tank through the hatch.

4. Unauthorized access to the storage tank is possible by using the access ladder. It is recommended that this situation be adjusted so that unauthorized personal cannot access the storage tank.

At this time it is unknown if any of these recommendations have been completed (Sanitary Survey, 2003) The well draws water from the alluvium deposits above the Wallace Formation. The aquifer is interpreted to be shallow and unconfined.

Public water systems must conduct routine monitoring for contaminants in accordance with Federal Safe Drinking Water Act requirements. A community public water supply, like Heron Community Water System, must sample in accordance with schedules specified in the Administrative Rules of Montana (ARM). Monitoring includes coliform bacteria, lead, copper, nitrate, nitrite, volatile organic chemicals (including hydrocarbons and chlorinated solvents), inorganic chemicals (including metals), synthetic organic chemicals (including pesticides), and radiological contaminants. Transient, non-community PWSs are required to conduct routine monitoring only for pathogens (including coliform bacteria), nitrate, and nitrite. All contaminant concentrations detected in required samples must comply with numeric maximum contaminant levels (MCLs) specified in the Federal Safe Drinking Water Act.

Table 2. Source water sensitivity criteria (DEQ, 1999).

Source Water Sensitivity
High Source Water Sensitivity
Surface water and GWUDISW
Unconsolidated Alluvium (unconfined)
Fluvial-Glacial Gravel
Terrace and Pediment Gravel
Shallow Fractured or Carbonate Bedrock
Moderate Source Water Sensitivity
Semi-consolidated Valley Fill sediments
Unconsolidated Alluvium (semi-confined)
Low Source Water Sensitivity
Consolidated Sandstone Bedrock
Deep Fractured or Carbonate Bedrock
Semi-consolidated Valley Fill Sediments (confined)

Heron Community Water System PWS Water Quality

Within the past five years, Heron Community Water System has 11 positive total coliform detections between May and June 2001. It is believed that positive detects were the result of a distribution line break below the storage tank. This leak was since been repaired and tests have been clear since that time. No MCL exceedances were noted for any other constituents monitored over the past five years, this includes nitrate. The highest nitrate value recorded for water from all of the wells is 0.64 milligrams per liter (mg/l) in January 2005, and the lowest nitrate value for all of the wells is 0.41 mg/l in January 2001. The average nitrate level for the past five years was 0.498, which is significantly below the MCL of 10 mg/l.

CHAPTER 2
DELINEATION

The source water protection areas for the Heron Community Water System public water system are delineated in this chapter. The purpose of delineation is to map the source of drinking water for the public water supply and to define areas within which to prioritize source water protection efforts. Normally for a public water supply using ground water there are three source water protection regions delineated for each well. They include: 1) a 100-foot control zone, 2) a 3-year Time-Of-Travel (TOT) inventory region, or an inventory region based on hydrogeologic mapping, and 3) a recharge region corresponding to the watershed that surrounds the public water supply. For ground water sources that are located close to streams, a surface water buffer region is also routinely delineated.

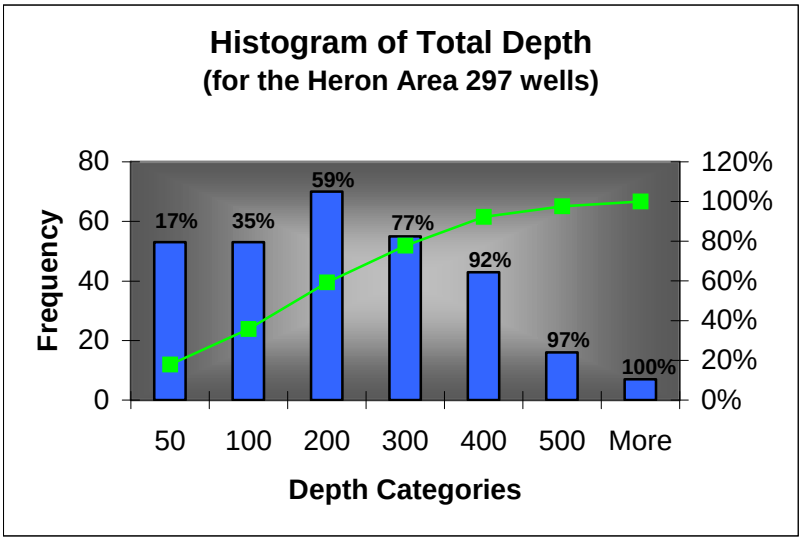
The goal of management in the control zone is to avoid introducing contaminants directly into the water supply's wells or the immediate surrounding areas. The inventory and surface water buffer regions should be managed to prevent contaminants from reaching the well before natural processes reduce their concentrations. The goal of management in the recharge region is to maintain and improve water quality over long periods of time or increased usage.

General Hydrogeologic Setting

Ground water within the Clark Fork River Valley can be found in several distinct aquifers or hydrologic units (groups of aquifers). Some of the wells near Heron Community Water System are completed in the alluvium, which is commonly around 100 feet thick. This aquifer is interpreted to be unconfined based on driller's logs from wells in the area. There are some areas where the alluvial aquifer can be locally confined by clay or silty clay beds related to over-bank flow deposits (flood events) or by alluvial fan deposits. However for the most part, the shallow alluvial aquifer within the Clark Fork River Valley is unconfined and has a high sensitivity to potential contaminant sources.

Local Hydrogeologic Setting

Figure 5: Histogram of Total Depth



Well information for 297 wells located in the watershed surrounding Heron was retrieved on June 27, 2005 from the Ground Water Information Center (GWIC) at the Montana Bureau of Mines and Geology (MBMG). Figure 5 shows a frequency distribution of total depth of these wells. Figure 5 indicates that the majority of wells are relatively shallow. Thirty-Five percent are less than 100 feet deep, and 17% are less than 50 feet deep. The average depth for all of the wells in the watershed is 189 ft. below land surface (ft. bls) and the maximum depth is 727 ft. bls.

Conceptual Model and Assumptions

Source water for the Heron Community Water System public water supply comes principally from the modern alluvial deposits (Figure 4). The aquifer within the alluvium is interpreted to be generally shallow and unconfined. However, the driller's log for the Heron well indicates the presence of a clay layer on the order of 17 feet thick. The clay layer is used as a barrier in the susceptibility analysis in chapter 4. In general, recharge is considered to come from a combination of precipitation, snowmelt runoff, and leakage from streams, rivers, and irrigation canals. Ground water flow direction is interpreted to be primarily from upland areas toward the river, or south-southeast to north-northwest for both shallow alluvial and bedrock aquifers (Figure 3A and Figure 3B). Close to the Clark Fork River, the ground water flow direction is interpreted to be approximately parallel to the river, or generally from the east to west.

Summary of Well Information

Table 3. Well Information Summary drillers log for the Heron Community Water System wells.

Well Name: **MBMG #** **DNRC WR#**	**Well #1** **81416** **W005509**
Location	27N 34W 35 ACBA
Date Completed	7/1/1969
Depth (ft bgs*)	132.00
Screened Interval (ft**)	Open Bottom
SWL Depth (ft bgs*)	86.00
PWL Depth (ft bgs*)	86.00
Drawdown (ft**)	0
Test Pumping Rate (gpm***)	33.00
Specific Capacity (gpm/ft****)	-

*ft bgs = feet below ground surface, **ft = feet, ***gpm = gallons per minute, ****gpm/ft = gallons per minute per foot of drawdown.

Delineation Results

Control Zones - 100-foot radius control zones is delineated for the well; all sources of potential contaminants should be excluded in this region. All potential contaminant sources are identified within the control zone.

Surface Water Buffer – This region extends one half mile from each bank of Elk Creek, and the West and East Forks of Elk Creek (Figure 3B, and Figure 7). Although Well #1 is no located within a ½ mile of Elk Creek most of the recharge for the aquifer is believed to come from the east where Elk Creek comes down from the mountains and meets the Clark Fork River. The surface water buffer region extends ten miles upstream from the Clark Fork River. All potential contaminant sources are identified within the surface water buffer region.

Inventory Region - The inventory region is based on hydrogeologic mapping of the general extent of the aquifer within the valley near Heron. The inventory region encompasses the town of Heron and follows the south bank of the Clark Fork River. The southern boundary of the inventory region is the edge of the Kaniksu National Forest or the southern edge of the Clark Fork River Valley where the alluvium meets the bedrock of the Wallace Formation.

Recharge Region – The watershed encompassing the Clark Fork River drainage is delineated as the recharge region. Potential sources of nitrate and pathogens are inventoried within this region. The inventory generally includes landuse and larger facilities that could potentially impact water quality.

Limiting Factors

No site-specific ground water studies were available for this region. The conceptual model presented in this report is a simplification of the real ground-water flow system near Heron Community Water System but is considered to be sufficiently accurate to assess the susceptibility of the Heron Community Water System public water supply to potential sources of contamination in the area.

Table 4. Information Used To Support Time-Of-Travel Calculations – Not Used For This Report

Input Parameter	**Values Used**	**Range of Values and units**
PWS Source Code		
Transmissivity		
Thickness		
Hydraulic Conductivity		
Hydraulic Gradient		
Flow Direction		
Effective Porosity		
Pumping Rate		
1-Year TOT		
3-Year TOT		
Stagnation Point		

CHAPTER 3
INVENTORY

An inventory of potential sources of contamination was conducted to assess the susceptibility of the Heron Community Water System public water supply to contamination, and to identify priorities for source water protection planning. Inventories were conducted within the control zone, and the inventory, surface water buffer, and recharge regions. The inventory focuses on facilities that generate, use, store, transport, or dispose of potential contaminants, and on land types on which potential contaminants are generated, used, stored, transported, or disposed. Additionally, the inventory identifies potential sources of all primary drinking water contaminants and Cryptosporidium. Only significant potential contaminant sources were selected for detailed inventory.

Inventory Method

Available databases were initially searched to identify businesses and land uses that are potential sources of regulated contaminants in the inventory region. The following steps were followed:

Step 1: Land cover is identified from the National Land Cover Dataset compiled by the U.S. Geological Survey and U.S. Environmental Protection Agency (U.S.G.S., 2000). Land cover types in this dataset were mapped from satellite imagery at 30-meter resolution using a variety of supporting information.

Step 2: EPA's Envirofacts System was queried to identify EPA regulated facilities. This system accesses the following databases: Resource Conservation and Recovery Information System (RCRIS), Biennial Reporting System (BRS), Toxic Release Inventory (TRI), Permit Compliance System (PCS), and Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS). The available reports were browsed for facility information including the Handler/Facility Classification to be used in assessing whether a facility is a significant potential contaminant source.

Step 3: DEQ databases were queried to identify Underground Storage Tanks (UST), hazardous waste contaminated sites, landfills, and abandoned mines.

Step 4: Major road and rail transportation routes were identified.

Step 5: All significant potential contaminant sources were identified in the inventory region and land uses and facilities that generate, store, transport, or dispose large quantities of hazardous materials were identified within the recharge region.

Potential contaminant sources are designated as significant if they fall into one of the following categories:

1) Large quantity hazardous waste generators
2) Landfills
3) Hazardous waste contaminated sites
4) Underground storage tanks
5) Major roads or rail transportation routes
6) Cultivated cropland
7) Animal feeding operations
8) Wastewater lagoons or spray irrigation
9) Septic systems
10) Sewered residential areas
11) Storm sewer outflows
12) Floor drains, sumps, or dry wells
13) Abandoned or active mines

Inventory Results/Control Zones

The control zone for the well includes portions of several roads, drive ways, and developed lots. There may also be one or more septic systems near the control zone (Sanitary Survey, 2005) (Figure 3A). Potential contaminants present in the control zone include yard and lawn chemicals, small volumes of fuel related to lawn care equipment, and possibly septic lines. Potential contaminants identified in the control zones for both wells are not stored in commercial volumes and are not considered to pose a threat to the source water. That being said, it would be still be advisable for the town to restrict the use of fertilizers, pesticides, or herbicides related to weed control efforts near the well locations.

Inventory Results/Inventory Region

The Northern Pacific Railroad runs the length of inventory region in fairly close proximity to the well. Part of the railroad is down gradient to the well, but the part of the railroad to the east of the well is considered to be up gradient to the well. The hazard comes from accidents resulting in spills and releases that would occur up gradient from the public water supply wells.

There are 4 underground storage tanks (UST) located in the inventory region for Heron Community Water System, 1 of these USTs is classified as a leaky underground storage tank (LUST) (Figure 3A and Figure 3B). The LUST is located at the Heron Store, which is located down gradient from the well. This means that the ground water beneath these tank sites is moving away from the Town's well and not toward it (Figure 3A and Figure 3B).

Within the inventory region most of the land is low septic density, except for a very small portion just west of the well that is high septic density and a slightly larger area of medium septic density to the south of the well. Septic density is used to assess the extent of individual septic tanks in the area, which can be potential sources of contamination (Figure 3A and Figure 3B). The area of land that has high septic density is located down gradient to the wells, while the area of medium septic density is up gradient.

There are two landfills for Heron located within the inventory region (Figure 3A). Both landfills have been closed for more than 10 years and are located more than ½ mile or more from the Town's well. While both of these landfills are no longer in use, they may still be considered a potential contaminant source. Both landfills are located to the south, up gradient, of the well.

Other potential contaminant sources in the Heron Community Water System area possibly include Class V injection wells (floor drains, French drains, etc). These are drains that are open to the shallow aquifer system and that are not connected to a septic system or sewer service. Class V wells were common in the past in a variety of private and commercial shops. The threat from Class V injection wells cannot be determined because an accurate inventory of these wells has not been completed for Montana. A local inventory of Class V injection wells is the best way to assess the threat they may pose to the source water.

From the above list of potential contaminant sources, some are considered significant based upon the following factors: the volume of potential releases, the volume of hazardous materials typically handled, the potential of the released materials to impact nearby surface water or groundwater, and the

proximity of the sources to the PWS well and infiltration lines. Significant potential contaminant sources from the above section are summarized for each source of water in Table 5 below.

Inventory Results/Surface Water Buffer

The majority of the significant potential contaminant sources are located outside the Elk Creek Valley and are concentrated near Heron (Figure 3A). Although a surface water buffer was delineated for the Heron Community Water System, the buffer does not actually encompass the well. As previously mentioned the aquifer receives most of its recharge from Elk Creek and that is why the surface water buffer was delineated.

Table 5. Significant Potential Contaminant Sources in the Inventory Region

Source	Contaminant	Hazard
Northern Pacific Railroad	Variety of hazardous materials including VOCs and SOCs, others?	Spills and releases related to accidents
Septic Application Location	Pathogens and nitrate, household hazardous waste	Infiltration into shallow ground water
LUST – Heron Store	Variety of hazardous materials including VOCs and SOCs, others?	Leaks into groundwater
Areas of High or Medium Septic Density	Pathogens and nitrate, household hazardous waste	Infiltration into shallow ground water
Landfill	Various	Infiltration into shallow ground water
Class V Injection Wells (existence and locations are not known) where storm and/or wastewater is concentrated and recharges groundwater.	VOCs, SOCs, petroleum hydrocarbons, metals, pathogens, nitrate	Leaks, spills, improper handling and disposal/discharge of chemicals used by various businesses and are released to systems that allow infiltration of contaminants to the subsurface or to the storm water system

One small area of medium septic density is shown to exist south of the well (Figure 3B). This is the same area of medium septic density that is identified in the inventory region. Ground water near the medium septic density area would flow generally towards the well. However, this area is more than a mile away and is not considered to pose a significant threat.

There is 1 underground storage tank (UST) located in the surface water buffer for Heron Community Water System (Figure 3B). Because this is not a leaky tank it is not considered to pose a significant threat to the well.

The Northern Pacific Railroad crossed the surface water buffer at the most northern tip. The hazard comes from accidents resulting in spills and releases that would occur up gradient from the public water supply wells. This is the same railroad discussed in the inventory region section.
Most of the surface water buffer is located on national forest land; therefore there is very little development in this region. No other businesses that use or generate hazardous chemicals were identified in the surface water buffer-inventory region.

Inventory Results/Recharge Region

Land cover in the recharge or watershed region is grassland (51%), forest (30%), other (transitional, etc.) (11%), agriculture (3%), urban (3%), and wetlands/open water (2%) (Figure 8). Forest and grasslands are not considered potential contaminant sources. Agricultural land is considered a potential contaminant sources due to the use of fertilizers, pesticides and herbicides. However, the percent of agricultural land in the area is small and is not considered to pose a threat to the source water.

Inventory Update

To make this SWDAR a useful document in the years to come, the owners, manager, or the certified water system operator(s) for the public water supply should update the inventory for their records every year. Changes in land uses or potential contaminant sources should be noted and additions made as needed. The complete inventory should be submitted to DEQ at least every 5 years to ensure that this report/plan stays current in the public record.

Inventory Limitations

The potential sources of contaminants described above are identified from readily available information. Consequently, unregulated activities or unreported contaminant releases may have been overlooked. The use of multiple sources of information, however, should ensure that the major threats to the source water have been identified.

CHAPTER 4
SUSCEPTIBILITY ASSESSMENT

Susceptibility is the potential for a public water supply to draw in water contaminated by inventoried sources. Susceptibility is assessed in order to help prioritize management actions for each potential contaminant source.

The goal of source water management is to protect the source water by 1) controlling activities in the control zone, 2) managing significant potential contaminant sources in the inventory region, and 3) ensuring that land use activities in the recharge region pose minimal threats to the source water. Management priorities in the inventory region are determined by ranking the significant potential contaminant sources identified in the previous chapter according to susceptibility. The PWS operators, town, and county officials could pursue alternative management approaches to help reduce susceptibility that are listed in Table 8 and discussed briefly in Chapter 5.

Susceptibility is determined by considering the hazard rating for each potential contaminant source and the existence of barriers that decrease the likelihood that contaminated water will flow to the PWS wells (Tables 7 and 8). For point sources, hazard is rated by the proximity of a potential contaminant source to the wells.

When time-of-travel calculations are performed, high hazard is assigned to point sources within the 1-year time-of-travel distance to a well. A moderate hazard rating is assigned to point sources located between the 1-year time-of-travel distance and the 3-year time-of-travel distance to a well. A low hazard rating is assigned to point sources located farther than the 3-year time-of-travel distance. Hazard ratings for nonpoint sources are assigned based on the following criteria in Table 6.

Table 6. Hazard of potential contaminant sources for the public water system wells.

Potential Contaminate Sources	**The PWS well is not sealed through the confining layer**	**Other wells in the inventory region are not sealed through the confining layer**	**All wells in the inventory region are sealed through the confining layer**
Point Sources	High	Moderate	Low
Septic Systems (# per square mile)	High: > 300 Moderate: 50 to 300 Low: < 50	Moderate: > 300 Low: < 300	Low
Sanitary Sewer (% land use)	High: > 50 Moderate: 20 to 50 Low: < 20	Moderate: > 50 Low: < 50	Low
Cropland (% land use)	High: > 50 Moderate: 20 to 50 Low: < 20	Moderate: > 50 Low: < 50	Low

Barriers to contamination can be anything that decreases the likelihood that contaminants will reach a well. Barriers can be engineered structures, management actions, or natural conditions. Examples of engineered barriers are spill catchment structures for industrial facilities and leak detection for underground storage tanks. Emergency planning and best management practices are considered management barriers. Thick clay-rich soils, a deep water table or a thick saturated zone above the well intake can be natural barriers. Table 7 shows how barriers are used to adjust the final susceptibility ratings.

Table 7. Susceptibility of Source Water based on Hazard rating and the presence of Barriers

	High Hazard Rating	**Moderate Hazard Rating**	**Low Hazard Rating**
No Barriers	Very High Susceptibility	High Susceptibility	Moderate Susceptibility
One Barrier	High Susceptibility	Moderate Susceptibility	Low Susceptibility
Multiple Barriers	Moderate Susceptibility	Low Susceptibility	Very Low Susceptibility

Susceptibility ratings are presented individually for each significant potential contaminant source and each associated contaminant on the following page (Table 8).

Table 8. Susceptibility Assessment for the Inventory Region - Heron Community Water System Public Water Supply.

Inventory Region							
Source	**ID Number on Maps**	**Contaminant**	**Hazard**	**Hazard Rating**	**Barriers**	**Susceptibility**	**Management Recommendations**
Northern Pacific Railroad	Not Numbered	Variety of hazardous materials including VOCs and SOCs, others?	Spills and releases related to accidents	**High**	-Emergency Response -Multiple clay layers -Generally cross-gradient where closest to the well	**Moderate**	- Maintain preparedness of local emergency personnel through active training, storm water diversion and other measures
Areas of High and Medium Septic Density	Not Numbered	Pathogens and nitrate,	Infiltration into shallow ground water	**High**	-High Septic Density is located down gradient* -Medium Septic Density is located more than 1 mile away from the well	**Moderate to Low**	Support efforts to provide educational workshops to the general public by the city, county, or state promote safe handling and proper storage, transport, use, and disposal of hazardous materials. Scheduled days for the collection of hazardous wastes from the public.
Landfills	Not Numbered	Various	Infiltration into shallow ground water	**Moderate**	-Two sites: Located more than ½ and 1 miles from well -Small closed facilities	**Moderate to Low**	-Support the agricultural community's educational efforts to distribute materials and resources to land owners on the proper application and storage of pesticide and fertilizers; implement agricultural BMPs
LUST – Heron Store	Not Numbered on the map	Variety of hazardous materials including VOCs and SOCs, others?	Leaking into groundwater	**High**	-Located down gradient to the well*	**Low**	- Maintain preparedness of local emergency personnel through active training, storm water diversion and other measures
Class V Injection Wells (existence and locations are not known) where storm and/or wastewater is concentrated and recharges groundwater.	Not Numbered	VOCs, SOCs, petroleum hydrocarbons, metals, pathogens, nitrate	Leaks, spills, improper handling and disposal/discharge of chemicals used by various businesses and are released to systems that allow infiltration of contaminants to the subsurface or to the storm water system	**Unknown**	*Unknown*	**Unknown**	Inventory; Provide educational information, materials and resources to business owners and the public on proper waste disposal and recycling

* This barrier is given extra weight due to the fact that ground water flow will be away from the well and not towards it.

Management Recommendations

It should be noted that even small releases of some chemicals in close proximity to a well, spring, infiltration gallery, or surface water intake can have significant negative impact on water quality, and is therefore a significant threat to a public water supply. Steps can be taken to reduce the likelihood of releases to the source water for the PWS or in the vicinity of the water sources (wells, springs, etc.). Some of these steps (considered management recommendations) are listed below. Some management recommendations are also included in the susceptibility table (Table 8). If these, and other, management actions are implemented; they may be considered additional barriers that will reduce the susceptibility of the public water supply wells to specific sources of contamination.

Specific management recommendations for the Heron Community Water System Public Water Supply:

The public water supply serving Heron Community Water System is moderately susceptible the agricultural land in the inventory region. Working with the agricultural community to increase awareness of the public water supply's location and encouraging the use of Best Management Practices (BMPs) for fertilizer, pesticide, and herbicide application would help lower the hazard posed by agricultural chemicals. Working with county and regional emergency response personnel to make sure they are aware of the public water supply's location in relation to Northern Pacific Railroad will also help shorten response time and could lessen the hazard posed by the railroad. Systematically inspecting and replacing aging septic lines would reduce the hazard posed by the on-site septic system.

Other general management recommendations fall into the following categories:

- Septic system maintenance and leak detection
- Municipal sewer extension
- Agricultural best management practices
- Education
- Emergency Response Planning

Septic System Maintenance and leak detection – Early warning of leaks and scheduled replacement of aging septic lines may reduce the susceptibility of the Heron Community Water System public water supply to contamination from septic wastes.

Sewer Extension – Installation of advanced septic treatment systems such as sand filters can limit contamination from new rural residential development, however, annexation and extension of sewers is the only way to reduce contamination from existing unsewered developments.

Agricultural and silvicultural best management practices (BMPs) – BMPs that address application and mixing of fertilizer and pesticides are a viable alternative to prohibition of their use. BMPs may also be utilized to minimize surface runoff and soil erosion on cultivated fields. Erosion control, selective logging, and other silvicultural practices (essentially BMPs) should be considered on a countywide basis. BMPs are generally voluntary but their implementation can be encouraged through education and technical assistance. County planning can help promote the implementation of BMP on lands that are outside the town limits but indirectly affect the city PWS.

Education **-** Educational workshops provided to the general public by the county or state promote safe handling and proper storage, transport, use, and disposal of hazardous materials. Ongoing training provided to designated emergency personnel will promote the efficiency and effectiveness of emergency responses to hazardous material spills. Likewise, educational workshops provided to rural homeowners will promote the proper maintenance and replacement of residential septic systems. The EPA and the State of Montana can provide educational materials on these topics.

Emergency Response Plan – Several counties have compiled Emergency Response Plans that were then adopted by the local communities. The usefulness and effectiveness of a response plan are maximized if it contains a clear listing of all emergency contacts, emergency numbers, and resources available within the county to respond to an emergency situation, such as a hazardous material spill. Emergency plans are not difficult to develop or distribute, but have a significant benefit to the citizens and municipalities within the county.

CHAPTER 5
MONITORING WAIVERS

Waiver Recommendation

The Heron Community Water System has a Phase 2 water quality monitoring wavier for inorganics. They are required to test for inorganics once every 9 years. Prior to requesting additional waivers, the PWS Operators would be encouraged to carefully review the following section on Monitoring Waiver Requirements. If after reviewing this section it is determined that an additional waiver is feasible, the Heron Community Water System PWS should submit a letter with the proper documentation to DEQ requesting monitoring waivers. The PWS also needs to provide additional information to DEQ regarding chemical use within the inventory region.

Monitoring Waiver Requirements

The 1986 Amendments to the Safe Drinking Water Act require that community and non-community PWSs sample drinking water sources for the presence of volatile organic chemicals (VOCs) and synthetic organic chemicals (SOCs). The US EPA has authorized states to issue monitoring waivers for the organic chemicals to systems that have completed an approved waiver application and review process. All PWSs in the State of Montana are eligible for consideration of monitoring waivers for several organic chemicals. The chemicals diquat, endothall, glyphosate, dioxins, ethylene dibromide (EDB), dibromochloropropane (DBCP), and polychlorinated biphenyls are excluded from monitoring requirements by statewide waivers.

To be sure that eligibility for all available waivers is considered, the PWS Operators are encouraged to carefully review the following section on Monitoring Waiver Requirements. The PWS should demonstrate sufficient barriers such that the susceptibility would not change over the term of a compliance cycle, even with continued development in the area. The PWS must be in compliance with monitoring requirements to be considered. Written waiver requests must be sent to DEQ at the address below:

Greg Butts
Montana DEQ, PWS Section
109 Cooperative Way
Suite 105
Kalispell, MT 59901

Upon receipt of a waiver request, DEQ will review the system's compliance history, historical monitoring results and source water setting. If waivers are considered appropriate, DEQ will provide the operator with application forms, guidance and technical assistance. If requested by DEQ, the PWS may also need to provide additional information regarding chemical use in the area within the Inventory Region. A site visit may be required to further investigate VOC and SOC use within the inventory region.

Monitoring Waiver Requirements

Use Waivers

A Use Waiver may be granted if it is determined that target organic chemicals were/are not used, manufactured, or stored in the area of a water source. If certain organic chemicals have been used, or if the use is unknown, the system would be determined to be vulnerable to organic chemical contamination and ineligible for a Use Waiver for those particular contaminants.

Susceptibility Waivers

If a Use Waiver is not granted, a system may still be eligible for a Susceptibility Waiver, if through a vulnerability assessment it is demonstrated that the water source would not be susceptible to contamination. The purpose of the vulnerability assessment procedures outlined in this section is to determine which of the organic chemical contaminants are in the area of investigation. The vulnerability assessment of a surface water source must consider the watershed area above the source, or a minimum fixed radius of 1.5 miles upgradient of the surface water intake. PWSs developed in unconfined aquifers should use a minimum fixed radius of one mile as an area of investigation for the use of organic chemicals. Vulnerability assessment of spring water sources should use a minimum fixed radius of one mile as an area of investigation for the use of organic chemicals. Surface water and shallow ground-water sources under the direct influence of surface water (GWUDISW) should assess the watershed area above the source, or a minimum fixed radius of one and one-half miles upgradient.

Given the wide range of landforms, land uses, and the diversity of ground water and surface water sources across the state, additional information is often required during the review of a waiver application. Additional information may include well logs, pump test data, water quality monitoring data from surrounding public water systems, delineation of zones of influence and contribution to a well; time-of-travel or attenuation studies; vulnerability mapping; and the use of computerized ground-water flow and transport models. DEQ's PWS Section and Source Water Protection Program will conduct review of an organic chemical monitoring waiver application. Other state agencies may be asked for assistance.

Susceptibility Waiver for Unconfined Aquifers

Unconfined aquifers are the most common source of usable ground water. Unconfined aquifers are not contained within impervious geologic strata. As a result, the upper ground-water surface, or water table, in an unconfined aquifer is not under the pressure that produces hydrostatic head common to confined aquifers.

Unconfined aquifers are usually locally recharged from surface water or precipitation. In general, ground-water flow gradients in unconfined aquifers reflect surface topography, and the residence time of water in the aquifer is generally shorter than for water in confined aquifers. Similar water chemistry often exists between unconfined ground water and area surface water, and physical parameters and dissolved constituents can be an indicator of the hydraulic connection between ground water and surface water. Consequently, unconfined aquifers can be susceptible to contamination by organic chemicals migrating from the ground surface to ground water.

Properly assessing a susceptibility waiver application for an unconfined source aquifer requires: site-specific information pertaining to the location and construction of the source development, monitoring history of the source, geologic characteristics of the unsaturated soil and vadose zones, and chemical characteristics of the organic chemicals pertaining to their mobility and persistence in the environment. The zone of contribution of the unconfined ground-water source must be defined and plotted. This should describe the ground-water flow directions, gradients, and a 3-year time-of-travel. All surface water bodies within 1,000 feet of the PWS well(s) must be plotted. Analytical monitoring history of the PWS well and those nearby should be provided as well.

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GLOSSARY*

Acute Health Effect. An adverse health effect in which symptoms develop rapidly.

Alkalinity. The capacity of water to neutralize acids.

Best Management Practices (BMPs). Methods that have been determined to be the most effective, practical means of preventing or reducing pollution from nonpoint sources.

Coliform Bacteria. Bacteria found in the intestinal tracts of animals. Their presence in water is an indicator of pollution and possible contamination by pathogens.

Confined Aquifer. A fully saturated aquifer overlain by a confining unit such as a clay layer. The static water level in a well in a confined aquifer is at an elevation that is equal to or higher than the base of the overlying confining unit.

Confining Unit. A geologic formation that inhibits the flow of water.

Delineation. A process of mapping source water management areas.

Effective Porosity. The percent of soil, sediment, or rock through which fluids, such as air or water, can pass. Effective porosity is always less than total porosity because fluids can not pass through all openings.

Hardness. Characteristic of water caused by presence of various salts. Hard water may interfere with some industrial processes and prevent soap from lathering.

Hazard. A measure of the potential of a contaminant leaked from a facility to reach a public water supply source. Proximity or density of significant potential contaminant sources determines hazard.

Hydraulic Conductivity. A coefficient of proportionality describing the rate at which water can move through an aquifer.

Inventory Region. A source water management area that encompasses an area expected to contribute water to a public water supply well within a fixed distance or a specified groundwater time-of-travel distance.

Maximum Contaminant Level (MCL). Maximum concentration of a substance in water that is permitted to be delivered to the users of a public water supply. Set by EPA under authority of the Safe Drinking Water Act.

Nitrate. An important plant nutrient and type of inorganic fertilizer. In water the major sources of nitrates are septic tanks, feed lots and fertilizers.

Nonpoint-Source Pollution. Pollution sources that are diffuse and do not have a single point of origin or are not introduced into a receiving stream from a specific outlet.

Pathogens. A bacterial organism or virus typically found in the intestinal tracts of mammals, capable of producing disease.

Point-Source. A stationary location or fixed facility from which pollutants are discharged.

Porosity. The percent of soil, sediment, or rock filled by air, water, or other fluid.

Public Water Supply (PWS). A system that provides piped water for human consumption to at least 15 service connections or regularly serves 25 individuals.

SIC Code. The U.S. Standard Industrial Classification (SIC) Codes classify categories of businesses. SIC Codes cover the entire range of business categories that exist within the economy.

Source Water Protection Area. For surface water sources, the land and surface drainage network that contributes water to a stream or reservoir used by a public water supply.

Susceptibility (of a PWS). The potential for a PWS to draw water contaminated at concentrations that would pose concern. Susceptibility is evaluated at the point immediately preceding treatment or, if no treatment is provided, at the entry point to the distribution system.

Synthetic Organic Compounds (SOC). Man made organic chemical compounds (e.g. pesticides).

Total Dissolved Solids (TDS). The dissolved solids collected after a sample of a known volume of water is passed through a very fine mesh filter.

Total Maximum Daily Load (TMDL). The total pollutant load to a surface water body from point, non-point, and natural sources. The TMDL program was established by section 303(d) of the Clean Water Act to help states implement water quality standards.

Turbidity. The cloudy appearance of water caused by the presence of suspended matter.

Transmissivity. The ability of an aquifer to transmit water.

Unconfined Aquifer. An aquifer containing water that is not under pressure. The water table is the top surface of an unconfined aquifer.

Volatile Organic Compounds (VOC). Any organic compound which evaporates readily to the atmosphere (e.g. fuels and solvents).

Recharge Region / Watershed. The land area that drains into a stream; the watershed for a major river may encompass a number of smaller watersheds that ultimately combine at a common delivery point.

* Definitions taken from EPA’s Glossary of Selected Terms and Abbreviations and other sources.

FIGURES

Figure 1. General Location Map

Figure 2. Climate Summary– Imbedded in text on page 4.

Figure 3A. Inventory of Potential Contaminant Sources Inventory Region

Figure 3B. Inventory of Potential Contaminant Sources Surface Water Buffer

Figure 4. General Geology

Figure 5. Well Depth Histogram – Imbedded in text on page 7

Figure 6. Inventory Region Map with Landcover / Landuse

Figure 7. Surface Water Buffer region with Landcover

Figure 8. Recharge Region with Landcover / Landuse

APPENDICES

APPENDIX A – Well Log for Heron Community Water System

Montana Bureau of Mines and Geology
Ground-Water Information Center Site Report
HERON COMMUNITY WATER SYSTEM - WELL 1

Plot this site on a topographic map

Location Information

GWIC Id:	81416	Source of Data:	LOG
Location (TRS):	27N 34W 35 ACBA	Latitude (dd):	48.0611
County (MT):	SANDERS	Longitude (dd):	-115.9406
DNRC Water Right:	W005509-00	Geomethod:	TRS-TWN
PWS Id:	00247002	Datum:	NAD27
Block:		Altitude (feet):	2200.00
Lot:		Certificate of Survey:	
Addition:		Type of Site:	WELL

Well Construction and Performance Data

Total Depth (ft):	132.00	How Drilled:	CHURN
Static Water Level (ft):	86.00	Driller's Name:	KANE
Pumping Water Level (ft):	86.00	Driller License:	WWC023
Yield (gpm):	33.00	Completion Date (m/d/y):	7/1/1969
Test Type:	BAIL PUMP	Special Conditions:	
Test Duration:	5.00	Is Well Flowing?:	
Drill Stem Setting (ft):		Shut-In Pressure:	
Recovery Water Level (ft):		Geology/Aquifer:	110ALVM
Recovery Time (hrs):		Well/Water Use:	PUBLIC WATER SUPPLY
Well Notes:			

Hole Diameter Information

From	To	Diameter
0.0	132.0	8.0

Casing Information[1]

From	To	Dia	Wall Thickness	Pressure Rating	Joint	Type
0.0	102.0	8.0				STEEL
102.0	132.0	8.0				STEEL

Annular Seal Information

No Seal Records currently in GWIC.

Completion Information[1]

No Completion Records currently in GWIC.

Lithology Information

From	To	Description
0.0	17.0	SAND AND GRAVEL
17.0	33.0	CLAY
33.0	39.0	ROCK
39.0	88.0	CLAY BOULDERS AND SAND
88.0	100.0	SAND GRAVEL AND WATER
100.0	107.0	BOULDERS AND WATER
107.0	124.0	SAND GRAVEL AND WATER
124.0	132.0	BOULDERS SAND GRAVEL AND WATER

[1] - All diameters reported are **inside** diameter of the casing.

APPENDIX B - DEQ Water Quality Report

Montana Department of Environmental Quality
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0000247 **Name:** HERON COMMUNITY WATER SYSTEM

City: HERON **County:** SANDERS **Tot Pop:** 60

Pri Src: GW **Class:** C **Last Snty Srv Dt:** 09/18/2003 **Activity Status:** A

Type	Conn's	In Srvc Dts	Eff Begin Dt	Avg Daily Cnt	Type
RS	46	1/1-12/31	01/01/1997	60	R

Administrative Contact
THOMPSON, PENNY
PO BOX 354
HERON, MT 59844
406-847-8004

Financial Contact
THOMPSON, PENNY
PO BOX 354
HERON, MT 59844
406-847-8004

Operator
JENSEN, JEAN
PO BOX 144
HERON, MT 59844
406-847-2289

Owner
HERON COMMUNTIY WATER USERS
PO BOX 354
HERON, MT 59844
406-847-5512

Facilities and Entry Points

Status: A 02/14/2000 **Fac ID:** DS001 DISTRIBUTION SYSTEM **Src:** GW
Lat/Long Dec: **DMS:**

Smp Pt ID	Status	Description
SP001	A 03/31/2000	

Status: A 10/05/2000 **Fac ID:** ST001 STORAGE FACILITY 1 **Src:** GW
Lat/Long Dec: **DMS:**

Status: A 02/14/2000 **Fac ID:** WL002 WELL 1 1969 **Src:** GW
Lat/Long Dec: 48.058876 **DMS:** .00 .00

Smp Pt ID	Status	Description
EP502	A 10/05/2000	EP FOR WELL 1

Sample Schedules/Monitoring Requirements

Attention Community and Noncommunity Nontransient systems: the new Disinfection Byproducts Rule has taken effect. Please contact the PWS Section at 444-4400 for additional monitoring requirements.

Fac ID: DS001 **Fac Name:** DISTRIBUTION SYSTEM **Status:** A **Src:** GW

Smp Pt ID	Active	Smp Pt Description
SP001	A	

Group	Name	Schd Beg Date	Seas Coll Per	Requirement
3100	COLIFORM, TOTAL (TCR)	08/01/2001	1/1-12/31	1 RT MN

Fac ID: DS001 **Fac Name:** DISTRIBUTION SYSTEM **Status:** A **Src:** GW

Smp Pt ID	Active	Smp Pt Description

June 27, 2005 4:02 PM

Page 1 of 8

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Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0000247 Name: HERON COMMUNITY WATER SYSTEM (continued)

Fac ID: DS001 **Fac Name:** DISTRIBUTION SYSTEM **Status:** A **Src:** GW
SP001 A

Group	Name	Schd Beg Date	Init MP Beg	Seas Coll Per	Requirement
PBCU	CDS LEAD COPPER ONLY	01/01/1999	01/01/1999	6/1-9/30	5 RT 3Y

Fac ID: WL002 **Fac Name:** WELL 1 1969 **Status:** A **Src:** GW

Smp Pt ID	Active	Smp Pt Description
EP502	A	EP FOR WELL 1

Group	Name	Schd Beg Date	Init MP Beg	Seas Coll Per	Requirement
ARSE	CDS ARSENIC	01/01/1999	01/01/1999	1/1-12/31	1 RT 3Y
COMB	CDS RADIUMS COMBINED	01/01/2004	01/01/2004	1/1-12/31	1 RT QT
GRAL	CDS RAD GROSS ALPHA	01/01/2004	01/01/2004	1/1-12/31	1 RT QT
INO2	CDS P5 INORGANICS	01/01/1999	01/01/1999	1/1-12/31	1 RT 3Y
INO4	CDS W P-2 INORGANICS	01/01/2002	01/01/2002	1/1-12/31	1 RT 9Y
NITR	CDS NITRATE NITRITE	01/01/2000	01/01/2000	1/1-12/31	1 RT YR
SOC1	CDS SOC	01/01/1999	01/01/1999	1/1-12/31	1 RT 3Y
VOC1	CDS VOC	01/01/2002	01/01/2002	1/1-12/31	1 RT 3Y

Bacti Results FROM 01/01/2000 TO 06/27/2005

Collection Dt	Lab Number	Type	Orig Lab #	Code		TCR Presence	Fec/EC Result
05/16/2005	W0505-1894	RT		3100	COLIFORM, TOTAL (TCR)	A	-
04/11/2005	W0504-1341	RT		3100	COLIFORM, TOTAL (TCR)	A	-
03/09/2005	W0503-0987	RT		3100	COLIFORM, TOTAL (TCR)	A	-
02/16/2005	W0502-0694	RT		3100	COLIFORM, TOTAL (TCR)	A	-
01/25/2005	W0501-0389	RT		3100	COLIFORM, TOTAL (TCR)	A	-
12/15/2004	W0412-5620	RT		3100	COLIFORM, TOTAL (TCR)	A	-
11/30/2004	W0412-5363	RT		3100	COLIFORM, TOTAL (TCR)	A	-
10/13/2004	W0410-4746	RT		3100	COLIFORM, TOTAL (TCR)	A	-
09/28/2004	W0409-4405	RT		3100	COLIFORM, TOTAL (TCR)	A	-
08/04/2004	W0408-3524	RT		3100	COLIFORM, TOTAL (TCR)	A	-
07/21/2004	W0407-3319	RT		3100	COLIFORM, TOTAL (TCR)	A	-
05/12/2004	W0405-2101	RT		3100	COLIFORM, TOTAL (TCR)	A	-
04/19/2004	W0404-1690	RT		3100	COLIFORM, TOTAL (TCR)	A	-
03/08/2004	W0403-1063	RT		3100	COLIFORM, TOTAL (TCR)	A	-
02/11/2004	W0402-0719	RT		3100	COLIFORM, TOTAL (TCR)	A	-
01/21/2004	W0401-0368	RT		3100	COLIFORM, TOTAL (TCR)	A	-
12/09/2003	W0312-6699	RT		3100	COLIFORM, TOTAL (TCR)	A	-
11/18/2003	W0311-6322	RT		3100	COLIFORM, TOTAL (TCR)	A	-
10/21/2003	W0310-5834	RT		3100	COLIFORM, TOTAL (TCR)	A	-
09/11/2003	W0309-4879	RT		3100	COLIFORM, TOTAL (TCR)	A	-

Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0000247 Name: HERON COMMUNITY WATER SYSTEM (continued)

Collection Dt	Lab Number	Type	Orig Lab #	Code		TCR Presence		Fec/EC Result
08/26/2003	W0308-4472	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
07/16/2003	W0307-3635	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
06/04/2003	W0306-2790	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
05/27/2003	W0305-2593	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
04/29/2003	W0304-2090	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
03/24/2003	W0303-1400	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
02/26/2003	W0302-0954	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
01/28/2003	W0301-0477	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
12/11/2002	W0212-7030	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
11/25/2002	W0211-6702	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
10/28/2002	W0210-6165	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
09/23/2002	W0209-5453	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/21/2002	W0208-4654	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
07/30/2002	W0207-4104	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
06/12/2002	W0206-3064	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
05/29/2002	W0205-2707	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
04/23/2002	W0204-2036	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
03/13/2002	W0203-1279	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
02/25/2002	W0202-0948	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
01/14/2002	W0201-0295	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
12/19/2001	W0112-07295	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
11/28/2001	W0111-06842	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
09/19/2001	W0109-05347	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/20/2001	W0108-04668	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/08/2001	W0108-04408	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/08/2001	W0108-04409	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/08/2001	W0108-04410	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/08/2001	W0108-04411	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/08/2001	W0108-04412	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
07/31/2001	W0108-04186	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
06/27/2001	W0106-03435	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
06/27/2001	W0106-03436	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
06/27/2001	W0106-03437	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
06/27/2001	W0106-03438	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
06/20/2001	W0106-03306	RT		3100	COLIFORM, TOTAL (TCR)	P	+	
06/20/2001	W0106-03306	RT		3013	COLIFORM, FECAL	A		-
06/20/2001	W0106-03307	RT		3100	COLIFORM, TOTAL (TCR)	P	+	
06/20/2001	W0106-03307	RT		3013	COLIFORM, FECAL	A		-
06/20/2001	W0106-03308	RT		3100	COLIFORM, TOTAL (TCR)	P	+	
06/20/2001	W0106-03308	RT		3013	COLIFORM, FECAL	A		-

Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0000247 Name: HERON COMMUNITY WATER SYSTEM (continued)

Collection Dt	Lab Number	Type	Orig Lab #	Code		TCR Presence		Fec/EC Result
06/20/2001	W0106-03309	RT		3100	COLIFORM, TOTAL (TCR)	P	+	
06/20/2001	W0106-03309	RT		3013	COLIFORM, FECAL	A		-
06/20/2001	W0106-03310	RT		3100	COLIFORM, TOTAL (TCR)	P	+	
06/20/2001	W0106-03310	RT		3013	COLIFORM, FECAL	A		-
06/12/2001	W0106-03184	RT		3100	COLIFORM, TOTAL (TCR)	P	+	
06/12/2001	W0106-03184	RT		3013	COLIFORM, FECAL	A		-
06/05/2001	W0106-03018	RP	W0105-0273[illegible]	3100	COLIFORM, TOTAL (TCR)	P	+	
06/05/2001	W0106-03018	RP	W0105-0273[illegible]	3013	COLIFORM, FECAL	A		-
06/05/2001	W0106-03019	RP	W0105-0273[illegible]	3100	COLIFORM, TOTAL (TCR)	P	+	
06/05/2001	W0106-03019	RP	W0105-0273[illegible]	3013	COLIFORM, FECAL	A		-
06/05/2001	W0106-03020	RP	W0105-0273[illegible]	3100	COLIFORM, TOTAL (TCR)	P	+	
06/05/2001	W0106-03020	RP	W0105-0273[illegible]	3013	COLIFORM, FECAL	A		-
06/05/2001	W0106-03021	RP	W0105-0273[illegible]	3100	COLIFORM, TOTAL (TCR)	P	+	
06/05/2001	W0106-03021	RP	W0105-0273[illegible]	3013	COLIFORM, FECAL	A		-
05/23/2001	W0105-02735	RT		3100	COLIFORM, TOTAL (TCR)	P	+	
05/23/2001	W0105-02735	RT		3013	COLIFORM, FECAL	A		-
04/17/2001	W0104-02024	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
03/28/2001	W0103-01575	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
02/26/2001	W0102-01025	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
01/30/2001	W0101-00577	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
12/12/2000	W0012-08365	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
11/15/2000	W0011-07834	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
10/24/2000	W0010-07341	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
09/25/2000	W0009-06505	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/22/2000	W0008-05718	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
07/24/2000	W0007-04867	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
06/19/2000	W0006-03934	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
05/17/2000	W0005-03223	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
04/18/2000	W0004-02502	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
03/21/2000	1778	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
02/22/2000	1233	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
01/04/2000	00101	RT		3100	COLIFORM, TOTAL (TCR)	A	-	

Chemical Results FROM 01/01/2000 TO 06/27/2005

Fac ID: DS001 **Fac Name:** DISTRIBUTION SYSTEM **Avl:** P **Status:** A **Src:** GW
Smp Pt ID: SP001 **Status:** A **Description:** **Src Typ:** FN

Analyte/CAS No		Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result	
IOC	7440-50-8	1022	COPPER	RT	08/04/2004	01	C0408-2480	0.099	MG/L
IOC	7439-92-1	1030	LEAD	RT	08/04/2004	01	C0408-2480	< MRL .001	MG/L
IOC	7440-50-8	1022	COPPER	RT	08/04/2004	01	C0408-2481	0.042	MG/L

Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0000247 **Name:** HERON COMMUNITY WATER SYSTEM (continued)

Fac ID: DS001 **Fac Name:** DISTRIBUTION SYSTEM **Avl:** P **Status:** A **Src:**
Smp Pt ID: SP001 **Status:** A **Description:** **Src Typ:** FN

Analyte/CAS No		Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result
IOC	7439-92-1	1030	LEAD	RT	08/04/2004	01	C0408-2481	< MRL .001 MG/L
IOC	7440-50-8	1022	COPPER	RT	08/04/2004	01	C0408-2482	0.015 MG/L
IOC	7439-92-1	1030	LEAD	RT	08/04/2004	01	C0408-2482	< MRL .001 MG/L
IOC	7440-50-8	1022	COPPER	RT	08/04/2004	01	C0408-2483	0.014 MG/L
IOC	7439-92-1	1030	LEAD	RT	08/04/2004	01	C0408-2483	< MRL .001 MG/L
IOC	7440-50-8	1022	COPPER	RT	08/04/2004	01	C0408-2484	0.013 MG/L
IOC	7439-92-1	1030	LEAD	RT	08/04/2004	01	C0408-2484	< MRL .001 MG/L

Fac ID: WL002 **Fac Name:** WELL 1 1969 **Avl:** P **Status:** A **Src:** GW
Smp Pt ID: EP502 **Status:** A **Description:** EP FOR WELL 1 **Src Typ:** RW

Analyte/CAS No		Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result
IOC	7440-36-0	1074	ANTIMONY	RT	04/11/2005	01	C0504-0973	< MRL .001 MG/L
IOC	7440-38-2	1005	ARSENIC	RT	04/11/2005	01	C0504-0973	0.001 MG/L
IOC	7440-39-3	1010	BARIUM	RT	04/11/2005	01	C0504-0973	0.040 MG/L
IOC	7440-41-7	1075	BERYLLIUM	RT	04/11/2005	01	C0504-0973	< MRL .001 MG/L
IOC	7440-43-9	1015	CADMIUM	RT	04/11/2005	01	C0504-0973	< MRL .001 MG/L
IOC	7440-47-3	1020	CHROMIUM	RT	04/11/2005	01	C0504-0973	< MRL .001 MG/L
IOC	16984-48-8	1025	FLUORIDE	RT	04/11/2005	01	C0504-0973	< MRL .1 MG/L
IOC	7439-97-6	1035	MERCURY	RT	04/11/2005	01	C0504-0973	< MRL .0002 MG/L
IOC	7440-02-0	1036	NICKEL	RT	04/11/2005	01	C0504-0973	< MRL .01 MG/L
IOC	7782-49-2	1045	SELENIUM	RT	04/11/2005	01	C0504-0973	< MRL .001 MG/L
IOC	14797-55-8	1040	NITRATE (AS N)	RT	02/15/2005	02	50125901	0.59 MG/L
IOC		1038	NITRATE+NITRITE (AS N)	RT	01/25/2005	01	C0501-0276	0.64 MG/L
IOC		1038	NITRATE+NITRITE (AS N)	RT	01/21/2004	01	C0401-0219	0.49 MG/L
RA		4000	GROSS ALPHA, INCLDNG RA, EXCLDNG RN	RT	10/07/2003	08	B03100562-001-R502	< MDL 3 PIC/L
RA		4010	RADIUM, COMBINED (226, 228)	RT	10/07/2003	08	B03100562-001-R502	< MDL 1 PIC/L
RA	13982-63-3	4020	RADIUM-226	RT	10/07/2003	08	B03100562-001-R502	< MDL 1 PIC/L
RA	15262-20-1	4030	RADIUM-228	RT	10/07/2003	08	B03100562-001-R502	< MDL 1 PIC/L
IOC		1038	NITRATE+NITRITE (AS N)	RT	01/28/2003	01	C0301-0382	0.43 MG/L
IOC		1038	NITRATE+NITRITE (AS N)	RT	02/25/2002	01	C0202-0653N502	0.52 MG/L
IOC	7440-36-0	1074	ANTIMONY	RT	12/12/2001	01	C0112-4415I502	< MRL .001 MG/L
IOC	7440-38-2	1005	ARSENIC	RT	12/12/2001	01	C0112-4415I502	0.002 MG/L
IOC	7440-41-7	1075	BERYLLIUM	RT	12/12/2001	01	C0112-4415I502	< MRL .001 MG/L
IOC	7440-02-0	1036	NICKEL	RT	12/12/2001	01	C0112-4415I502	< MRL .01 MG/L
IOC	7440-28-0	1085	THALLIUM	RT	12/12/2001	01	C0112-4415I502	< MRL .001 MG/L
OC	1746-01-6	2063	2,3,7,8 TCDD (DIOXIN)	RT	12/12/2001	01	C0112-4415S502	< MDL 0 MG/L
OC	93-72-1	2110	2,4,5-TP (SILVEX)	RT	12/12/2001	01	C0112-4415S502	< MDL .0002 MG/L
OC	94-75-7	2105	2,4-D	RT	12/12/2001	01	C0112-4415S502	< MDL .0001 MG/L
OC	16655-82-6	2066	3-HYDROXYCARBOFURAN	RT	12/12/2001	01	C0112-4415S502	< MDL .00002 MG/L
OC	15972-60-8	2051	ALACHLOR (LASSO)	RT	12/12/2001	01	C0112-4415S502	< MDL .0002 MG/L
OC	116-06-3	2047	ALDICARB	RT	12/12/2001	01	C0112-4415S502	< MDL .0005 MG/L
OC	1646-88-4	2044	ALDICARB SULFONE	RT	12/12/2001	01	C0112-4415S502	< MDL .0005 MG/L
OC	1646-87-3	2043	ALDICARB SULFOXIDE	RT	12/12/2001	01	C0112-4415S502	< MDL .0008 MG/L
OC	309-00-2	2356	ALDRIN	RT	12/12/2001	01	C0112-4415S502	< MDL .00002 MG/L
OC	1912-24-9	2050	ATRAZINE	RT	12/12/2001	01	C0112-4415S502	< MDL .0001 MG/L
OC	50-32-8	2306	BENZO (A) PYRENE	RT	12/12/2001	01	C0112-4415S502	< MDL .0001 MG/L
OC	58-89-9	2010	BHC-GAMMA (LINDANE)	RT	12/12/2001	01	C0112-4415S502	< MDL .00002 MG/L
OC	23184-66-9	2076	BUTACHLOR (MACHETE)	RT	12/12/2001	01	C0112-4415S502	< MDL .00002 MG/L
OC	63-25-2	2021	CARBARYL	RT	12/12/2001	01	C0112-4415S502	< MDL .00002 MG/L
OC	1563-66-2	2046	CARBOFURAN	RT	12/12/2001	01	C0112-4415S502	< MDL .0009 MG/L
OC	57-74-9	2959	CHLORDANE	RT	12/12/2001	01	C0112-4415S502	< MDL .0002 MG/L
OC	75-99-0	2031	DALAPON	RT	12/12/2001	01	C0112-4415S502	< MDL .1 MG/L
OC	103-23-1	2035	DI(2-ETHYLHEXYL) - ADIPATE	RT	12/12/2001	01	C0112-4415S502	< MDL .0006 MG/L
OC	117-81-7	2039	DI(2-ETHYLHEXYL) - PHTHALATE	RT	12/12/2001	01	C0112-4415S502	< MDL .0006 MG/L
OC	96-12-8	2931	DIBROMOCHLOROPROPANE (DBCP)	RT	12/12/2001	01	C0112-4415S502	< MDL .00002 MG/L

Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0000247 **Name:** HERON COMMUNITY WATER SYSTEM (continued)

Fac ID: WL002 **Fac Name:** WELL 1 1969 **Avl:** P **Status:** A **Src:**
Smp Pt ID: EP502 **Status:** A **Description:** EP FOR WELL 1 **Src Typ:** RW

Analyte/CAS No		Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result
OC	1918-00-9	2440	DICAMBA	RT	12/12/2001	01	C0112-4415S502	< MDL .1 MG/L
OC	60-57-1	2070	DIELDRIN	RT	12/12/2001	01	C0112-4415S502	< MDL .1 MG/L
OC	88-85-7	2041	DINOSEB	RT	12/12/2001	01	C0112-4415S502	< MDL .0002 MG/L
OC	85-00-7	2032	DIQUAT	RT	12/12/2001	01	C0112-4415S502	< MDL .0004 MG/L
OC	145-73-3	2033	ENDOTHALL	RT	12/12/2001	01	C0112-4415S502	< MDL .009 MG/L
OC	72-20-8	2005	ENDRIN	RT	12/12/2001	01	C0112-4415S502	< MDL .00001 MG/L
OC	106-93-4	2946	ETHYLENE DIBROMIDE (EDB)	RT	12/12/2001	01	C0112-4415S502	< MDL .00001 MG/L
OC	1071-83-6	2034	GLYPHOSATE	RT	12/12/2001	01	C0112-4415S502	< MDL .006 MG/L
OC	76-44-8	2065	HEPTACHLOR	RT	12/12/2001	01	C0112-4415S502	< MDL .00004 MG/L
OC	1024-57-3	2067	HEPTACHLOR EPOXIDE	RT	12/12/2001	01	C0112-4415S502	< MDL .00002 MG/L
OC	118-74-1	2274	HEXACHLOROBENZENE	RT	12/12/2001	01	C0112-4415S502	< MDL .0001 MG/L
OC	77-47-4	2042	HEXACHLOROCYCLOPENTADIENE	RT	12/12/2001	01	C0112-4415S502	< MDL .0001 MG/L
OC	16752-77-5	2022	METHOMYL	RT	12/12/2001	01	C0112-4415S502	< MDL .1 MG/L
OC	72-43-5	2015	METHOXYCHLOR	RT	12/12/2001	01	C0112-4415S502	< MDL .0001 MG/L
OC	51218-45-2	2045	METOLACHLOR	RT	12/12/2001	01	C0112-4415S502	< MDL .1 MG/L
OC	21087-64-9	2595	METRIBUZIN (SENCOR)	RT	12/12/2001	01	C0112-4415S502	< MDL .1 MG/L
OC	23135-22-0	2036	OXAMYL (VYDATE)	RT	12/12/2001	01	C0112-4415S502	< MDL .002 MG/L
OC	87-86-5	2326	PENTACHLOROPHENOL	RT	12/12/2001	01	C0112-4415S502	< MDL .00004 MG/L
OC	1918-02-1	2040	PICLORAM	RT	12/12/2001	01	C0112-4415S502	< MDL .0001 MG/L
OC	1336-36-3	2383	POLYCHLORINATED BIPHENYLS (PCB)	RT	12/12/2001	01	C0112-4415S502	< MDL .0001 MG/L
OC	1918-16-7	2077	PROPACHLOR	RT	12/12/2001	01	C0112-4415S502	< MDL .1 MG/L
OC	122-34-9	2037	SIMAZINE	RT	12/12/2001	01	C0112-4415S502	< MDL .00007 MG/L
OC	8001-35-2	2020	TOXAPHENE	RT	12/12/2001	01	C0112-4415S502	< MDL .001 MG/L
OC	630-20-6	2986	1,1,1,2-TETRACHLOROETHANE	RT	12/12/2001	01	C0112-4415V502	< MDL 0 MG/L
OC	71-55-6	2981	1,1,1-TRICHLOROETHANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	79-34-5	2988	1,1,2,2-TETRACHLOROETHANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	79-00-5	2985	1,1,2-TRICHLOROETHANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	75-34-3	2978	1,1-DICHLOROETHANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	75-35-4	2977	1,1-DICHLOROETHYLENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	563-58-6	2410	1,1-DICHLOROPROPENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC		2419	1,2,3 - TRIMETHYLBENZENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	87-61-6	2420	1,2,3-TRICHLOROBENZENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	96-18-4	2414	1,2,3-TRICHLOROPROPANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	120-82-1	2378	1,2,4-TRICHLOROBENZENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	107-06-2	2980	1,2-DICHLOROETHANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	78-87-5	2983	1,2-DICHLOROPROPANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	108-67-8	2424	1,3,5-TRIMETHYLBENZENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	142-28-9	2412	1,3-DICHLOROPROPANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	594-20-7	2416	2,2-DICHLOROPROPANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	71-43-2	2990	BENZENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	108-86-1	2993	BROMOBENZENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	75-27-4	2943	BROMODICHLOROMETHANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	75-25-2	2942	BROMOFORM	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	74-83-9	2214	BROMOMETHANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	56-23-5	2982	CARBON TETRACHLORIDE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	124-48-1	2944	CHLORODIBROMOMETHANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	75-00-3	2216	CHLOROETHANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	67-66-3	2941	CHLOROFORM	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	74-87-3	2210	CHLOROMETHANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	156-59-2	2380	CIS-1,2-DICHLOROETHYLENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	10061-02-6	2228	CIS-1,3-DICHLOROPROPENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	74-95-3	2408	DIBROMOMETHANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	75-71-8	2212	DICHLORODIFLUOROMETHANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	75-09-2	2964	DICHLOROMETHANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	100-41-4	2992	ETHYLBENZENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	87-68-3	2246	HEXACHLOROBUTADIENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L

Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0000247 Name: HERON COMMUNITY WATER SYSTEM (continued)

Fac ID: WL002 **Fac Name:** WELL 1 1969 **Avl:** P **Status:** A **Src:**
Smp Pt ID: EP502 **Status:** A **Description:** EP FOR WELL 1 **Src Typ:** RW

Analyte/CAS No		Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result
OC	98-82-8	2994	ISOPROPYLBENZENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	541-73-1	2967	M-DICHLOROBENZENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	108-90-7	2989	MONOCHLOROBENZENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	104-51-8	2422	N-BUTYLBENZENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	103-65-1	2998	N-PROPYLBENZENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	91-20-3	2248	NAPHTHALENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	95-49-8	2965	O-CHLOROTOLUENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	95-50-1	2968	O-DICHLOROBENZENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	106-43-4	2966	P-CHLOROTOLUENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	106-46-7	2969	P-DICHLOROBENZENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	99-87-6	2030	P-ISOPROPYLTOLUENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	100-42-5	2996	STYRENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	98-06-6	2426	TERT-BUTYLBENZENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	127-18-4	2987	TETRACHLOROETHYLENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	108-88-3	2991	TOLUENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	156-60-5	2979	TRANS-1,2-DICHLOROETHYLENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	10061-02-6	2224	TRANS-1,3-DICHLOROPROPENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	79-01-6	2984	TRICHLOROETHYLENE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	75-69-4	2218	TRICHLOROFLUOROMETHANE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	75-01-4	2976	VINYL CHLORIDE	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	108-38-3	2995	XYLENE, META	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	95-47-6	2997	XYLENE, ORTHO	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	106-42-3	2962	XYLENE, PARA	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
OC	1330-20-7	2955	XYLENES	RT	12/12/2001	01	C0112-4415V502	< MDL .0005 MG/L
IOC		1038	NITRATE+NITRITE (AS N)	RT	01/30/2001	MIG	C0101-0313-I502	0.41 MG/L

Violations & Enforcements FROM 01/01/2000 TO 06/27/2005

Viol Date	Comp Beg	Comp End	Fed FY	Viol No	Type	Sev	Cate	Code	Name
04/08/2005	01/01/2002	12/31/2004	2005	3	03	MJ	MON	VOC1	CDS VOC
2005	49986	04/15/2005	SOX		ST COMPLIANCE ACHIEVED				
2005	49985	04/15/2005	SIE		ST PUBLIC NOTIF REQUESTED				
2005	49984	04/15/2005	SIA		ST VIOLATION/REMINDER NOTICE				
04/07/2005	01/01/2002	12/31/2004	2005	3	03	MJ	MON	INO2	CDS P5 INORGANICS
2005	49980	04/14/2005	SOX		ST COMPLIANCE ACHIEVED				
2005	49979	04/14/2005	SIE		ST PUBLIC NOTIF REQUESTED				
2005	49978	04/14/2005	SIA		ST VIOLATION/REMINDER NOTICE				
04/07/2005	01/01/2002	12/31/2004	2005	3	03	MJ	MON	SOC1	CDS SOC
2005	49983	04/14/2005	SOX		ST COMPLIANCE ACHIEVED				
2005	49982	04/14/2005	SIE		ST PUBLIC NOTIF REQUESTED				
2005	49981	04/14/2005	SIA		ST VIOLATION/REMINDER NOTICE				
04/06/2005	01/01/2002	12/31/2004	2005	3	03	MJ	MON	ARSE	CDS ARSENIC
2005	49977	04/13/2005	SOX		ST COMPLIANCE ACHIEVED				
2005	49976	04/13/2005	SIE		ST PUBLIC NOTIF REQUESTED				
2005	49975	04/13/2005	SIA		ST VIOLATION/REMINDER NOTICE				
01/14/2004	01/01/1999	12/31/2001	2004	3	52		MON	5000	LEAD & COPPER RULE

Public Water Supply System

PWSID: MT0000247 Name: HERON COMMUNITY WATER SYSTEM (continued)

Viol Date	Comp Beg	Comp End	Fed FY	Viol No	Type	Sev	Cate	Code	Name
09/21/2001	01/01/2000	12/31/2000	2001	3	03	MJ	MON	NITR	CDS NITRATE NITRITE
2003	49973	12/03/2002	SOX		ST COMPLIANCE ACHIEVED				
2001	48415	09/24/2001	SIE		ST PUBLIC NOTIF REQUESTED				
2001	48414	09/24/2001	SIA		ST VIOLATION/REMINDER NOTICE				
06/08/2001	05/01/2001	05/31/2001	2001	2	22		MCL	3100	COLIFORM, TOTAL (TCR)
2002	49971	11/02/2001	SOX		ST COMPLIANCE ACHIEVED				
2001	46513	06/09/2001	SIE		ST PUBLIC NOTIF REQUESTED				
2001	46512	06/09/2001	SIA		ST VIOLATION/REMINDER NOTICE				
2001	46515	06/09/2001	MPH		PHONE CALL TO SYSTEM				
2001	46514	06/09/2001	MHA		HEALTH ADVISORY				
2001	46515	06/09/2001	EF<		FED CFP ISSUED				
12/31/2000	01/01/1997	12/31/2000	2000	3	52		MON	5000	LEAD & COPPER RULE
2000	44588	12/31/2000	SIA		ST VIOLATION/REMINDER NOTICE				

APPENDIX C – Sanitary Survey

Helena Files
Short-form

Montana Department of
ENVIRONMENTAL QUALITY
Judy Martz, Governor
109 Cooperative Way • Suite 105 • Kalispell, MT 59901-2389 • (406) 755-8985 • FAX (406) 755-8977

PERMITTING AND COMPLIANCE DIVISION
Community Services Bureau
Public Water Supply Section

SDWIS
2/20/04
KB

October 15, 2003

Heron Community Water System
Attn: Jean Jensen
P.O. Box 144
Heron, MT 59844

Re: Sanitary survey inspection of heron Community Water System (PWSID MT#0000247).

Dear Jean,

I would like to thank you and Nick Marich for assisting me during the sanitary survey inspection of Heron Community Water System. As a community public water supply system, your facility is required to have a sanitary survey inspection every three years. These regular inspections offer us an opportunity to look for sanitary deficiencies that have the potential to cause contamination in the water system, as well pointing out operation and maintenance problems.

Heron's last water system sanitary survey was in July of 2000'. Your system should be congratulated on performing many of the recommended improvements outlined in the inspection report. Thank you for the letter and photo's that showed the improvements made.

Below are a few items of concern that were observed during the sanitary survey completed on September 18th, 2003.

WELL # 1
The well cap was replaced, casing extended, concrete pad poured and a permanent lockable container has been placed over the wellhead to prevent vandalism to Heron' only source well. These improvements are worth the time and investment made to protect Heron's only source well.

DISTRIBUTION
- Operate distribution valves routinely.
- Document flushing program and valve operating efforts in records.
- Operate and maintain fireboxes if they are to be used in fire fighting efforts.
- Distribution north of the elementary school has several small trees growing over the main line. I suggest the trees be removed from above the distribution main to avoi problems as the trees grow.

Data Entered KB

SANITARY SURVEY RE-INSPECTION SHORT FORM

DATE OF SURVEY *9/18/2003*	COUNTY *Sanders 089*	SURVEYOR NAME *Michael Kropp, DEQ Kalispell*
PWSID *MT0000247*	SYSTEM NAME *Heron Community Water System*	
(SYSTEM REPRESENTATIVE) *Jean Jensen*	(OTHER REPRESENTATIVE) *Nick Marich*	

SYSTEM ADDRESS

Addressee *Jean Jensen*
Primary Address
Street *P.O. Box 142*
City *Heron* State *MT* Zip *59844*
System Phone *(406)847-2323* Fax ( )

SYSTEM OWNER

Addressee *Heron Community Water System*
Owners Address
Street *P.O. Box 354*
City *Heron* State *MT* Zip *59844*
Owner Phone *(406) 847-8004* Fax ( )

OPERATOR OF SYSTEM

Name *Jean Jensen*
Certified Operator ☐ No ☒ Yes If, yes
Certification # ____ Phone *(406) 847-2323*

SYSTEM CLASS

☒ **C** = Community ☐ **NTNC** = Non-Transient Non-Community
☐ **NC** = Transient Non-Community

Total Service Connections: Residential / Non-Transient: *40*
Transient: *6*

Total Active Connections: Residential / Non-Transient: ____
Transient: ____

Service Connections Metered? ☐ Yes ☒ No % ____ Metered

Resident Population — Number of permanent residents utilizing PWS daily — Summer: *60* Winter: *60*

Non-Transient Population — Number of non-transient persons utilizing PWS daily — Summer: ____ Winter: ____

Transient Population — Number of transient persons served by PWS daily — Summer: ____ Winter: ____

WATER SYSTEM FACILITIES SUMMARY (WSF)

WSF ID	Facility Name	Water Type Code	Purchased	Seller PWSID
DS 001	Distribution System			
WL002	well 1 - 1969	GW	☐ Yes ☒ No	
ST001	storage facility - 20,000 gal.		☐ Yes ☐ No	
DS001	distribution system		☐ Yes ☐ No	
			☐ Yes ☐ No	
			☐ Yes ☐ No	
			☐ Yes ☐ No	

Description of Water System Facility flow: *Herons well (WL002) supplies water directly into the distribution system (DS001). A 20,000-gallon storage tank (ST001) floats on distribution to maintain water pressure.*

Example: Well 1(WL002) is pumped into pumphouse where chlorine is applied (TP001) and from there to the storage tank (ST001). The treated water flows by gravity to the Distribution System (DS001)

WATER TREATMENT FACILITIES

WSF ID Treatment Plant Name Treatment Objective and Code

____	NO_TREATMENT	____ ____ ____
____	_____	____ ____ ____
____	_____	____ ____ ____
____	_____	____ ____ ____
____	_____	____ ____ ____
____	_____	____ ____ ____

Treatment Description / Comments:____

PRESSURE CONTROL ASSEMBLY

CAPTIVE AIR TANK(S)

WSF ID *NA* Location, Description *NA*

Is there a pressure relief valve? ☐ Yes ☐ No

Is there an operable pressure gauge? ☐ Yes ☐ No

Does low pressure level provide adequate pressure? ☐ Yes ☐ No

Are there water-logged tanks? ☐ Yes ☐ No

Is the exterior surface of the tanks in good physical condition? ☐ Yes ☐ No

Can tank(s) be by-passed for repair? ☐ Yes ☐ No

Pump run time _____

Time of Day _____ Cut-In _____ psi

Cut-Out _____ psi

Pump Type: _____

Comments: _____

PRESSURE TANK(S)

WSF ID _____ Location, Description _____

Is there an operable pressure gauge? ☐ Yes ☐ No

Does low pressure level provide adequate pressure? ☐ Yes ☐ No

Pump recharge rate _____ Cut-In _____ psi

Time of day _____ Cut-Out _____ psi

Is the tank water logged? ☐ Yes ☐ No

Is air charge system adequate? ☐ Yes ☐ No

Is the exterior surface of the pressure tank in good physical condition? ☐ Yes ☐ No

Is there a water level sight glass? ☐ Yes ☐ No

Is there a bottom drain valve? ☐ Yes ☐ No

Is there a pressure relief valve? ☐ Yes ☐ No

Can tank(s) be by-passed for repair? ☐ Yes ☐ No

Pump type: _____

Comments: _____

STORAGE

How much treated storage is provided? *NA* gallons

STORAGE FACILITY

WSF ID *ST001* Location, Description *storage tank for untreated water*

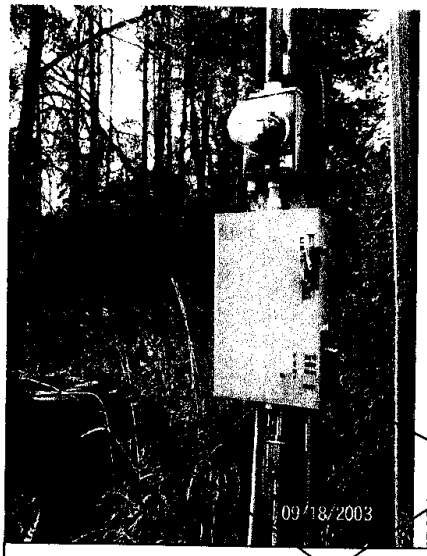
Storage Volume? *20,000* gallons

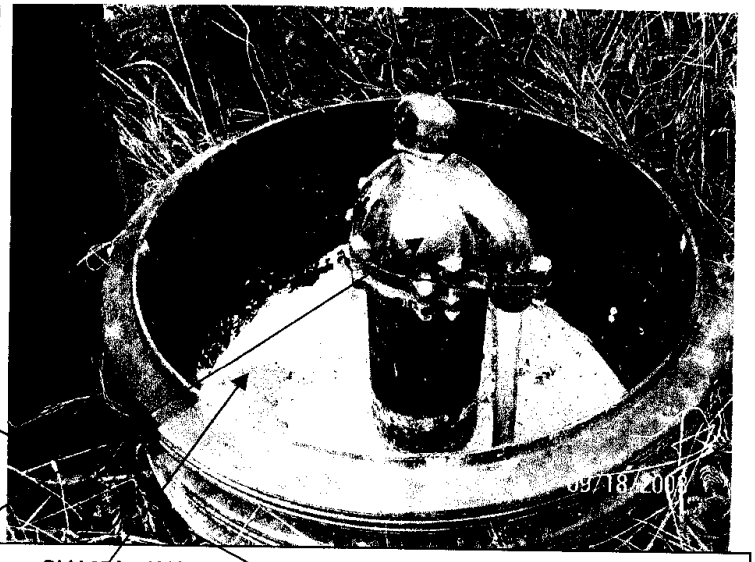
Are overflow lines, air vents, drainage lines or clean out pipes turned downward or covered, screened and terminated a minimum of 3 diameters above the ground or storage tank surface?	☒ Yes ☐ No
Is access hatch sealed properly and locked?	☒ Yes ☐ No
Is site adequately protected against vandalism?	☐ Yes ☒ No
Can tank be isolated from system?	☐ Yes ☒ No

What is cleaning frequency for tanks? *Liquid Engineers in 1997*

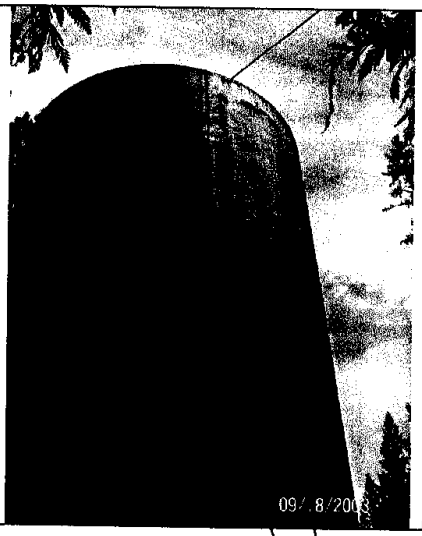
Comments:

Most of the items outlined in the 2000 sanitary survey were addressed. The storage tank hatch is now gasketed, but the gasket doesn't seal the opening appropriately and needs attention. The storage tank ladder is cut off several rungs above ground level to prevent trespass, however, the extension ladder is readily accessible. The storage tank needs attention to rust and newly coated. One bacteriological positive sample in the last three years appearred to have come from an distribution line break below the storage tank (since repaired).





Heron Community Water System PWSID #MT0000247 Inspected 9/18/2003
Jean Jensen and Nick Marich were present. Inspected by Michael Kropp, DEQ, Kalispell. Wellhead protection and control panel locks have been implemented since the 2000 inspection. Note the locked wellhead containment and electrical control panel locks. A new well cap was installed and concrete was placed inside the containment structure.



The above left photo shows tree growth over the suspected distribution main near the elementary school. I recommend clearing trees from growing over the distribution main. Heron's storage tank is showing signs of age. Consider cleaning the rust off and repainting this tank as soon as economically feasible. The cable shown in the above photo's is anchored to a tree to stabilize the standpipe storage tank. Note the rust and paint failure areas.

June 15,2001

Mike Kropp, Water Quality Specialist
Max Lauder, Environmental Engineering Specialist
109 Cooperative Way Suite 105
Kalispell, Mt 59901

Heron Community Water System
Gerald Syth, President
Jean Jensen, Water Operator
Heron, Mt 59844

This is to inform you of the improvements that have been made to our Water System suggested by you when you visited us in July of 2000.

SAMPLING

1. Biological samples are done monthly, at three rotating sites
2. Other types of samples are being done when they are due
3. A new operator is studying for certification at this time.

AT THE WELL SITE

1. A new well cap is installed as are the vents and screens
2. The well casing is replaced
   a. The drainage around the casing is completed
   b. The casing is 18 or more inches above ground
3. We have verified ownership/easement of the well site

AT THE TANK

1. The 24 mesh screen is clamped on the drain
2. The manhole on top has a new rubber gasket
3. The safety cage on the ladder is on hold because of the tank possibly being replaced.

We are now in the process of joining either Rural Water or the Mt. Association of Water and Sewer Systems. There is some discussion as to which one of the two will be the most advantageous to our needs.

As for the Heron Community Well (old school), they are using it for their own concern, and a back flow preventer valve is in place.

Pictures of improvements are enclosed.

Audrey Rasmussen
Sec/treas. Heron Water System

APPENDIX D - Concurrence Letter & Other Correspondence